



## HD 37AB17D, HD 37B17D DATALOGGER RELATIVE HUMIDITY - TEMPERATURE - CO - CO<sub>2</sub>

HD37AB17D and HD37B17D instruments are **data loggers** able to measure and memorize simultaneously the following parameters:

- Relative Humidity **RH**
- Environment temperature **T**
- Carbon monoxide **CO** (only HD37AB17D)
- Carbon dioxide **CO<sub>2</sub>**

HD37AB17D and HD37B17D instruments have the ability to investigate and monitor the indoor air quality.

Typical applications include checking air quality inside buildings occupied by people (schools, hospitals, auditoria, canteens, etc.); and work places to optimize the comfort and to generally check for small leaks of CO with danger of explosions or fire. This analysis allows the management of conditioning plants (temperature and humidity) and ventilation (recycle air/hour) in order to reach a double purpose: getting a good quality of the air in accordance with ASHRAE and IMC regulations and energy saving.

HD37AB17D and HD37B17D are instruments which are very useful to fight the so-called syndrome of sick building.

**RH** (Relative Humidity) measurement is obtained with a capacitive sensor.

**T** temperature is measured with a high precision NTC sensor.

The **CO** measurement (Carbon monoxide, only for HD37AB17D) is made by an electrochemical cell with two electrodes indicated to detect the presence of Carbon monoxide, lethal for men, in his living or working environment.

The **CO<sub>2</sub>** measurement (Carbon dioxide) is obtained with a special infrared sensor (NDIR technology: Non-Dispersive Infrared Technology) that, thanks to the use of double filter and a special measurement techniques, guarantees accurate and stable measurements over time. The infrared sensor is equipped with a protection membrane which provides protection from dust particles and aggressive air agents to assure the sensor's long life.

HD37AB17D and HD37B17D are **data loggers** able to memorize the detected measurements at an interval set by the user.

HD37AB17D and HD37B17D are connected to the PC by **USB** input.

**DeltaLog13** communication **software** via the USB port, designed to perform data transfer, data collection and recording and printing of all the instrument parameters and stored measurements. In addition the software allows the calibration adjustments of the RH, CO (only

HD37B17D) and CO<sub>2</sub> sensors.

Using appropriate procedure, the Software DeltaLog13 can evaluate the parameter **% OA** (percentage of external air), according to the following formula:

$$\%OA = \frac{X_r - X_s}{X_r - X_0} \cdot 100$$

whereas:

**X<sub>r</sub>** = CO<sub>2</sub> in return air

**X<sub>s</sub>** = CO<sub>2</sub> in the outlet air

**X<sub>0</sub>** = CO<sub>2</sub> in the external air

The power supply of the instrument is provided by a 2 Ni-MH **rechargeable** batteries package (code BAT-20), that allows 8 hours of continuous working in acquisition mode.

### Acquisition frequency :

Frequency	samples per minute	maximum duration of logging limited
3 sec.	20 samples per minute	16 hours
6 sec	10 samples per minute	1 day, 9 hours
12 sec	5 samples per minute	2 days, 12 hours
15 sec	4 samples per minute	3 days, 12 hours
30 sec	2 samples per minute	6 days, 12 hours
60 sec. = 1 min.	1 samples per minute	13 days, 12 hours
120 sec. = 2 min.	1 sample every 2 minutes	27 days, 12 hours
180 sec. = 3 min.	1 sample every 3 minutes	41 days, 12 hours
240 sec. = 4 min.	1 sample every 4 minutes	55 days, 12 hours
300 sec. = 5 min.	1 sample every 5 minutes	69 days

### Technical Features

Dimensions	275 mm x 45 mm x 40 mm
Weight	230 g (batteries included)
Materials	ABS
Mains power supply	Batteries charger <b>100-240Vac/6Vdc-1A (code SWD06)</b>
Batteries	Package with 2 rechargeable batteries 1.2V type AA (NiMH)
Autonomy	8 hours of continuous working in measurement mode
Current absorbed with instrument off	200µA
CO <sub>2</sub> temperature compensation	0°C...50°C
<i>Operating conditions</i>	
Working temperature	-20°C...+60°C
Storage temperature	-25°C...+65°C
Working relative humidity	0%RH ... 90%RH no condensation
Protection degree	IP30

Safety of the stored data Unlimited

### Connections

USB interface	USB 2.0 cable B type Baudrate 460800
Batteries charger power supply (code SWD06)	2 - poles connector (positive at the centre) Output voltage: <b>6Vdc</b> Maximum current: 1600mA (9, 60 VA Max).
Measuring rate	1 sample every three seconds
Storage capacity	20000 Records Every record includes the following: - date and time - measurement of the carbon dioxide (CO <sub>2</sub> ) - measurement of the carbon monoxide CO (only HD37AB17D) - measurement of the relative humidity (RH) - measurement of the temperature (T)



Logging interval selectable within: 3,6,12,15,30,60 seconds, 2,3,4,5 minutes  
The stored values represent the average value of the samples that are stored every three seconds.

Printing interval selectable within: 3,6,12,15,30,60 seconds, 2,3,4,5 minutes  
The printed values represent the average value of the samples that are stored every three seconds.

### Sensor Features

#### Relative Humidity RH

Sensor Capacitive sensor  
Sensor protection Net filter made of stainless steel (on request filter P6 in AISI316 sintered 10µm or filter P7 in PTFE sintered 20µm)

Measurement range 0...100 % RH  
Sensor working range -20...+60°C  
Accuracy ±1.5%RH (0÷90%RH)  
±2%RH in the remaining range, for T=15...35°C  
±(1,5+1.5%of the measured value)%RH for T= -20...+60°C

Resolution 0,1%  
Thermal effects ±2% on whole temperature range  
Hysteresis and repeatability 1% RH  
Response time (T<sub>90</sub>) < 20 sec. (air speed = 2m/sec) without filter  
Long term stability 1%/year

#### Temperature T

Sensor type NTC 10kΩ  
Measurement range -20...+60°C  
Accuracy ±0.2°C ±0.15% of the measure  
Resolution 0,1°C  
Response time (T<sub>90</sub>) < 30 sec. (air speed = 2m/sec)  
Long term stability 0.1°C/year

#### Carbon monoxide CO (only HD37AB17D)

Sensor Electro chemical cell  
Measurement range 0...500ppm  
Sensor working range -5...50°C

Accuracy ±3ppm±3% of the measured value  
Resolution 1ppm  
Response time (T<sub>90</sub>) < 50 sec.  
Long term stability 5% of the measure/year  
Expected life > 5 years in normal environmental conditions

#### Carbon dioxide CO<sub>2</sub>

Sensor NDIR with a double wave length  
Measurement range 0...5000 ppm  
Sensor working range -5...50°C  
Accuracy ±50ppm±3% of the measurement  
Resolution 1ppm  
Thermal effects 0,1%/s./°C  
Response time (T<sub>90</sub>) < 120 sec. (air speed = 2m/sec)  
Long term stability 5% of the measure/ 5 years

#### Ordering codes

**HD37AB17D:** The kit consists of: **HD37AB17D** instrument to measure CO (Carbon monoxide), CO<sub>2</sub> (Carbon dioxide), RH (Relative Humidity), T (Temperature), **DeltaLog13** Software, USB cable code **CP22**, **SWD06** power supply, **BAT-2** batteries pack, instruction manual, carrying case.

**HD37B17D:** The kit consists of **HD37B17D** instrument to measure CO<sub>2</sub> (Carbon dioxide), RH (Relative Humidity), T (Temperature), **DeltaLog13** Software, USB cable code **CP22**, **SWD06** power supply, **BAT-2** batteries pack, instruction manual, carrying case.

#### Accessories:

**VTRAP20:** Instrument tripod, maximum height 270mm.

**SWD06:** 100-240Vac/6Vdc-1A mains voltage power supply.

**BAT-20:** Replacement batteries pack for HD37AB17D and HD37B17D instruments with integrated temperature sensor.

**P6:** Sintered stainless steel 10µ grid protection, for probes diameter 14, thread M12×1.

**P7:** 20µ, PTFE protection for probes diameter 14, thread M12×1.

**P8:** Stainless steel and Poca 20µ protection for probes diameter 14, thread M12×1.

**HD75:** Saturated solution for testing the Relative Humidity with 75% HR, complete with adapter for probes diameter 14, thread M12×1.

**HD33:** Saturated solution for testing the Relative Humidity with 33% HR, complete with adapter for probes diameter 14, thread M12×1.

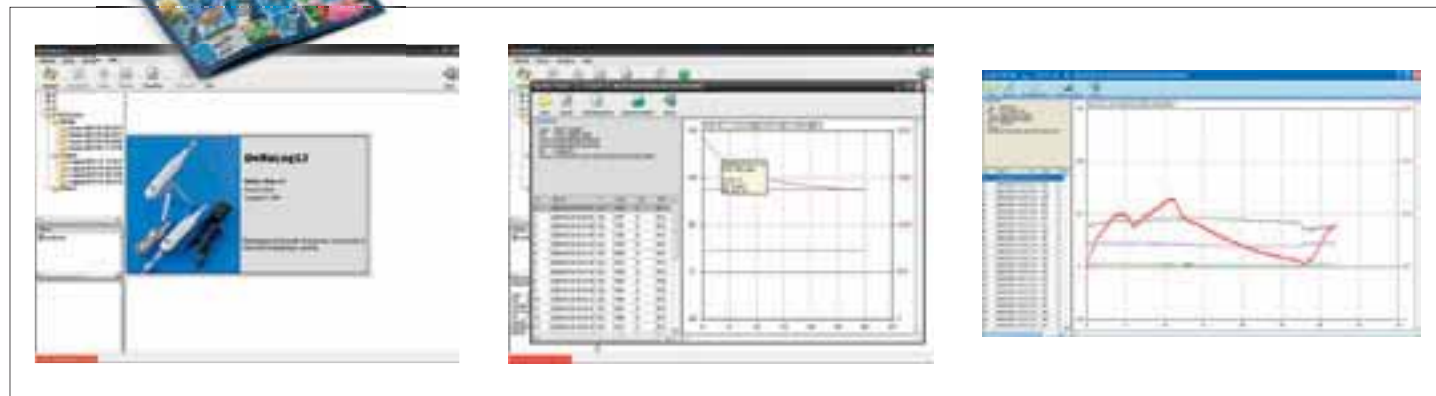
**MINICAN.12A:** Cylinder of nitrogen for the calibration of CO and CO<sub>2</sub> at 0ppm. Volume 12 litres. **With adjustment valve.**

**MINICAN.12A1:** Cylinder of nitrogen for the calibration of CO and CO<sub>2</sub> at 0ppm. Volume 12 litres. **Without adjustment valve.**

**ECO-SURE-2E CO:** Spare CO sensor.

**HD37.36:** Kit connection pipe between instrument and MINICAN.12A for the calibration of CO.

**HD37.37:** Kit connection pipe between instrument and MINICAN.12A for the calibration of CO<sub>2</sub>.



Humidity